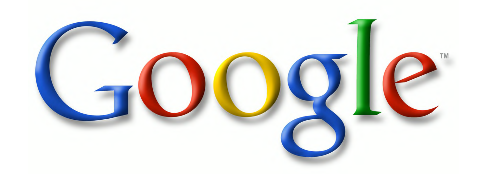


SPILLAN'S
COMPENDIUM
OF
MATERIA MEDICA
PHARMACY & TOXICOLOGY

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A MANUAL

OF

GENERAL, DESCRIPTIVE,

AND

PATHOLOGICAL ANATOMY.

BY

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TRANSLATED FROM THE GERMAN INTO FRENCH,

WITH ADDITIONS AND NOTES,

BY

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TRANSLATED FROM THE FRENCH,

WITH NOTES,

BY A. S. DOANE, A.M., M.D.,

AND OTHERS.

J. C. Henderson, Printer, 18, Banner Square, St. Luke's.

COMPENDIUM

OF

MATERIA MEDICA,

&c.

A COMPENDIUM

OF

MATERIA MEDICA,

PHARMACY, AND TOXICOLOGY.

CONTAINING

TABLES OF THE MATERIA MEDICA, THE CHEMICAL

DECOMPOSITIONS

OF THE

LONDON PHARMACOPŒIA,

AND

TOXICOLOGICAL TABLES.

FOR THE USE OF MEDICAL STUDENTS.

By D. SPILLAN, M. D.

LONDON:
G. HENDERSON, OLD BAILEY, LUDGATE-HILL.
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PREFACE.

The object of this little manual is to furnish the pupil 1st, with a Conspectus of the Materia Medica, including the effects, uses and doses of the several medicinal substances, both simple and compound; 2nd, with the chemical decompositions of the New London Pharmacopœia; and 3rd, with tables of the several poisons derived from the Mineral and Vegetable Kingdoms, exhibiting the symptoms caused by them, as also the antidotes and tests for each. The student preparing for examination will, it is hoped, find the book a useful refresher, whilst the junior practitioner may refer to it with advantage, on sudden emergencies in cases of poisoning, where in the confusion and hurry of the moment his memory may fail him, and a reference to larger works may be more than inconvenient.

TABLES

EXHIBITING THE EFFECTS, USES, AND DOSES, OF THE SEVERAL SUBSTANCES USED IN MEDICINE.

NAME.	EFFECTS.	USES.	DOSES.
Absinthium	Stomachic or tonic	In epilepsy, agues, dropsy, jaundice and worms	℈j to ʒj.
Acacia	Demulcent	To allay cough	℈j to ʒj.
Acetosella	Antiseptic and refrigerant	In fevers, scurvy, &c.	ad libitum.
Acetum Colchici	Diuretic	Chiefly in gout	f. ʒss to f. ʒj.
Acetum Distillatum	Refrigerant, diaphoretic, &c.	Pharmaceutic	— — —
Acetum Scillæ	Diuretic, expectorant	Catarrh	f. ʒss to f. ʒjss.
Acidum Benzoicum	Expectorant	In pectoral affections	gr. x to ʒss.
——— Citricum	Refrigerant	In fevers and in scurvy	gr. x to ʒj.
——— Hydrochloricum	— — — — —	Chiefly used in pharmacy	— — —
——————— Dilutum	Refrigerant and antiseptic	In fevers, syphilis, and calculous affections	♏xx to f. ʒj.
——— Nitricum Dilutum	Antiseptic, antisyphilitic	In malignant fevers, syphilis, hepatitis	♏x to f. ʒj.
——— Hydrocyanicum Dilutum	Sedative	In pulmonary and stomach affections	♏iij to ♏v.
——— Phosphoricum Dil.	Tonic	In cases of exostosis	♏xx to f. ʒj.

NAME.	EFFECTS.	USES.	DOSES.
Acidum Sulphuricum Dilutum	Antiseptic, refrigerant and astringent	In colliquative sweats, internal hæmorrhage	♏x to ♏xl.
Aconiti Folia	Narcotic, sudorific	Rheumatism, gout, cancer, &c.	gr. j to gr. iv.
Aconitina	— — — — —	Not used internally; externally as an ointment in neuralgic affections.	— — —
Adeps	— — — — —	For making ointments	— — —
Ærugo	Tonic, emetic	In epilepsy, incipient phthisis	gr. ⅛ to gr. j.
Æther Sulphuricus	Stimulant, antispasmodic	In typhoid fevers, and hysteria	f. ʒss to ʒij.
Allii Radix	A stimulating expectorant & diaphoretic	Asthma, chronic catarrh	ʒj. to ʒij.
Aloes Extractum	Cathartic	In habitual costiveness	gr. v to gr. xv.
Alumen	Astringent	Hæmorrhage, Diarrhœa	gr. x to ℈j.
Ammoniacum	Stimulant, expectorant	Chronic pulmonary affections	gr. x to ʒss.
Ammoniæ Hydrochloras	Stimulant	In catarrhal, rheumatic and exanthematous fevers, catarrhus vesicæ, leucorrhœa, &c.	gr. x to ʒss.
Ammoniæ Sesquicarbonas	Stimulant, diaphoretic, antacid, and, in large dose, emetic	In typhoid fevers, hysteria, &c.	gr. v to x. gr. xxx, vomit
Anethi Fructus	Carminative	Infantile colic, and flatulence	gr. x to ℈j.
Anisi Fructus	Carminative	In the gripes and flatulence of infants	gr. x to ʒj.
Anthemidis Flores	Tonic, carminative	Ague, dyspepsia, gout, &c.	gr. x to ℈j.

NAME.	EFFECTS.	USES.	DOSES.
Antimonii Oxysulphuretum	Alterative, emetic	Herpetic and other eruptions	gr. j to gr. iv.
——— Potassio-tartras	Diaphoretic, purgative, emetic	In fevers, pneumonia	gr. ¼, diaphoretic. gr. ½, diaphoretic and purgative. gr. j, emetic, purgative and diaphoretic.
Aqua Anethi	Carminative	In the tormina of infants	f. ℥j to f. ℥iij.
—— Carui	Carminative	* As a vehicle for more active medicine	f. ℥j to f. ℥iij.
Argenti Nitras	In minute doses tonic and antispasmodic	In chorea, epilepsy, &c.	gr. ⅛ to gr. ¼.
Armoraciæ Radix	Stimulant, diuretic	In chronic rheumatism, dropsy	℈j to ʒj.
Assafœtida	Antispasmodic	Hysteria, chlorosis, asthma	gr. x to ʒss.
Aurantii Baccæ	Stomachic	In dyspepsia, gout, &c.	℈j to ʒij.
——— Cortex	Stomachic	— — — —	— — —
Balsamum Peruvianum ——— Tolutanum	Stimulating and tonic	Asthma, gonorrhœa, dysentery	gr. x to ʒss. gr. x to ʒss.
Belladonnæ Folia	Antispasmodic, deobstruent	In gout, paralysis, dropsy and jaundice	gr. ss to gr. vi.
Benzoinum	Pectoral	In chronic coughs	gr. x to ʒss.
Bismuth, Trisnitras	Antispasmodic	In gastrodynia	gr. v to gr. xv.
Cajeputi Oleum	Stimulant, antispasmodic	Hysteria, epilepsy, flatulent colic	♏j to ♏iv.

* The uses and doses of the other distilled waters nearly the same.

NAME.	EFFECTS.	USES.	DOSES.
Calumbæ Radix	Tonic	Diarrhœa, dysentery, dyspepsia,	gr. x to ℈j.
Cambogia	Cathartic and hydragogue	Dropsy	gr. ij to gr. viij.
Camphora	Stimulant, diaphoretic, narcotic	In typhoid affections, hysteria	gr. ij to gr. xv.
Canellæ Cortex	Stimulant and tonic	Dyspepsia, gout	gr. x to ʒss.
Cantharis	Stimulant, diuretic	Dropsy, gleet, &c.	gr. j to gr. iij.
Capsici Baccæ	Stimulant	Dyspepsia, gout	gr. v to gr. x.
Cardamines Flores	Stimulant, antispasmodic	In spasmodic diseases	℈j to ʒj.
Cardamomi Semina	Carminative	Dyspeptic affections	gr. v to ʒss.
Carui Fructus	Carminative, stomachic	In flatulent colic	gr. viij to ʒss.
Caryophylli }	Stimulant	In gout and dyspepsia	gr. v to ʒss.
—— Oleum }			♏j to ♏v.
Cascarillæ Cortex	Tonic	Intermittents and dyspepsia	gr. x to ʒss.
Cassiæ Pulpa	Laxative	In diseases of children	℥ss to ℥j.
Castoreum	Antispasmodic, emmenagog.	Hysteria, chlorosis	gr. v to ℈j.
Catechu Extractum	Astringent	Diarrhœa, dysentery	gr. x to ℈ij.
Centaurii Cacumina	Tonic	Dyspepsia	gr. xv to ʒj.
Cerevisiæ Fermentum	Antiseptic	In typhus	f. ℥ss.
Cetaceum	Demulcent	Dysentery and catarrh	℈j to ℈jss.
Cinchonæ Cordifoliæ Cortex }			
——Lancifoliæ Cortex }	Tonic, Antiseptic	Intermittent and typhoid fevers	gr. x to ʒjss.
——Oblongifoliæ Cortex }			

NAME.	EFFECTS.	USES.	DOSES.
Cinnamomi Cortex	Stimulant	Dyspepsia	gr. v to ℈j.
——— Oleum	Stimulant	Cramps in the stomach	♏j to ♏iij.
Coccus	— — — — —	For colouring matter	— — —
Colchici Cormus	Diuretic, cathartic	Gout and rheumatism	gr. j to gr. v.
Colocynthidis Pulpa	Cathartic	Where purgatives are indicated	gr. j to gr. v.
Confectio Aromatica	Stimulant	— — —	gr. xx to ʒj.
——— Aurantii	Stomachic	Dyspepsia	ʒj to ℥j.
——— Cassiæ	Purgative	As a vehicle for more active medicines	ʒij to ℥j.
——— Opii	Narcotic, stimulant	— — —	gr. x to ʒss.
——— Piperis Nigri*	A hot carminative	In piles, in leuco-phlegmatic habits	ʒj to ʒij.
——— Rosæ Caninæ }	— — — — —	These are employed as vehicles for forming more active medicines into pills and electuaries	ʒj to ℥j.
——— ——— Gallicæ }			ʒj to ℥j.
——— Scammonii	A stimulating purgative	— — —	℈j to ʒj.
——— Sennæ	Laxative	— — —	ʒj to ʒiij.
Conii Folia	Narcotic	Scirrhus and cancer	gr. ij to ℈j.
Contrajervæ Radix	Tonic, diaphoretic, stimulant	In typhoid affections—in gout	gr. x to ʒss.
Copaiba	Stimulant and diuretic	In gonorrhœa, gleet, leuchorrhœa	♏viij to f. ʒj.
Coriandri Fructus	Stomachic	Flatulency	℈j to ʒj.

* This is a substitute for Ward's Paste.

NAME.	EFFECTS.	USES.	DOSES.
Creasoton	Stimulant, antiseptic	In cases of debility; to prevent nausea	♏j to ♏iv.
Creta Præparata	Antacid	In acidity of the primæ viæ	gr. x to ℈iv.
Cubeba	Stimulant, diuretic	Gonorrhœa and gleet	℈j to ʒjss.
Cupri Ammonio-Sulphas	Tonic, antispasmodic	In chorea and epilepsy	gr. ¼ to gr. iv.
Cupri Sulphas	Emetic, tonic	Only externally as an escharotic, has been given in incipient phthisis	gr. ¼ to gr. ij. tonic. gr. v to gr. xv. emetic.
Cuspariæ Cortex	Tonic	Intermittents, dyspepsia, gout	gr. x to gr. xx.
Cymini Fructus	Carminative	In flatulence	℈j to ʒj.
Dauci Fructus	Stomachic	In flatulence	℈j to ʒj.
Decoct. Aloes Comp.	Laxative	— — — —	f. ℥ss to f. ℥j.
——— Cetrariæ	Tonic	Phthisis, general debility	f. ℥j to f. ℥iv.
——— Chimaphilæ	Diuretic	Dropsy, urinary affections	f. ℥j to f. ℥ij.
——— Cinchonæ	Tonic	Intermittents, debility	f. ℥j to f. ℥iij.
——— Dulcamaræ	Diuretic, deobstruent, emetic	In lepra, scrofula, jaundice, dropsy	f. ℥ss to f. ℥j.
——— Granati	Astringent	In dysentery, also in tænia	f. ℥ss to f. ℥j.
——— Sarsæ	Alterative	Syphilis	f. ℥iv to f. ℥viij.
——— Compos.	Diaphoretic and alterative	Secondary syphilis, rheumatism	f. ℥iv to f. ℥viij.
——— Scoparii Compos.	Diuretic	Dropsy	f. ℥j to f. ℥iss.
——— Senegæ	Expectorant, diuretic	Bronchitis with much mucus	f. ℥jss to f. ℥iij.
——— Tormentillæ	Astringent	In diarrhœa	f. ℥j to f. ℥iss.
——— Ulmi	Diuretic	In herpetic eruptions	f. ℥iv to f. ℥vi.

NAME.	EFFECTS.	USES.	DOSES.
——— Uvæ Ursi	A bitter tonic	Affections of the urinary organs	f. ℥j to f. ℥ij.
Digitalis Folia	Diuretic, sedative	Dropsy, pulmonary and cardiac affections	gr. ss to gr. iij.
Extractum Aconiti	Narcotic, diaphoretic	Sciatica, intermittents with visceral disease, chronic rheumatism	gr. j to gr. ij.
——— Aloes purificatum	Cathartic	— — — —	gr. v to gr. xv.
——— Cinchonæ Cardifoliæ	Tonic	— — — —	gr. x to ʒss.
——— Colchici Aceticum	Similar to the Acetum Colchici in its effects and uses	— — — —	gr. ss to gr. ij.
——— Colocynthidis Comp.	Cathartic	— — — —	gr. x to ʒss.
——— Elaterii	Cathartic and hydragogue	Dropsy	gr. ss to gr. ij.
——— Gentianæ	Tonic	In dyspepsia and as a vehicle	gr. x to ʒss.
——— Hæmatoxyli	Astringent	In dysentery and diarrhœa	gr. x to ʒss.
——— Hyoscyami	Sedative and antispasmodic	Where an anodyne is required	gr. v to gr. x.
——— Jalapæ	Hydragogue, cathartic	Dropsy	gr. x to gr. xx.
——— Lactucæ	Sedative and anodyne	Where anodynes are required	gr. v to gr. x.
——— Lupuli	Sedative	In articular rheumatism	gr. v to gr. xx.
——— Opii purificatum	Narcotic	Where the continued action of opium is required	gr. j to gr. iv.
——— Papaveris	Anodyne	— — — —	gr. ij to ℈j.
——— Pareiræ	Deobstruent	Visceral obstructions	gr. x to ʒss.

NAME.	EFFECTS.	USES.	DOSES.
Acidum Sulphuricum Dilutum	Antiseptic, refrigerant and astringent	In colliquative sweats, internal hæmorrhage	♏x to ♏xl.
Aconiti Folia	Narcotic, sudorific	Rheumatism, gout, cancer, &c.	gr. j to gr. iv.
Aconitina	— — — — —	Not used internally; externally as an ointment in neuralgic affections.	— — —
Adeps	— — — — —	For making ointments	— — —
Ærugo	Tonic, emetic	In epilepsy, incipient phthisis	gr. ⅛ to gr. j.
Æther Sulphuricus	Stimulant, antispasmodic	In typhoid fevers, and hysteria	f. ʒss to ʒij.
Allii Radix	A stimulating expectorant & diaphoretic	Asthma, chronic catarrh	ʒj. to ʒij.
Aloes Extractum	Cathartic	In habitual costiveness	gr. v to gr. xv.
Alumen	Astringent	Hæmorrhage, Diarrhœa	gr. x to ℈j.
Ammoniacum	Stimulant, expectorant	Chronic pulmonary affections	gr. x to ʒss.
Ammoniæ Hydrochloras	Stimulant	In catarrhal, rheumatic and exanthematous fevers, catarrhus vesicæ, leucorrhœa, &c.	gr. x to ʒss.
Ammoniæ Sesquicarbonas	Stimulant, diaphoretic, antacid, and, in large dose, emetic	In typhoid fevers, hysteria, &c.	gr. v to x. gr. xxx, vomit
Anethi Fructus	Carminative	Infantile colic, and flatulence	gr. x to ℈j.
Anisi Fructus	Carminative	In the gripes and flatulence of infants	gr. x to ʒj.
Anthemidis Flores	Tonic, carminative	Ague, dyspepsia, gout, &c.	gr. x to ℈j.

NAME.	EFFECTS.	USES.	DOSES.
Antimonii Oxysulphuretum	Alterative, emetic	Herpetic and other eruptions	gr. j to gr. iv.
——— Potassio-tartras	Diaphoretic, purgative, emetic	In fevers, pneumonia	gr. $\frac{1}{4}$, diaphoretic. gr. $\frac{1}{8}$, diaphoretic and purgative. gr. j, emetic, purgative and diaphoretic.
Aqua Anethi	Carminative	In the tormina of infants	f. ℥j to f. ℥iij.
—— Carui	Carminative	* As a vehicle for more active medicine	f. ℥j to f. ℥iij.
Argenti Nitras	In minute doses tonic and antispasmodic	In chorea, epilepsy, &c.	gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$.
Armoraciæ Radix	Stimulant, diuretic	In chronic rheumatism, dropsy	℈j to ʒj.
Assafœtida	Antispasmodic	Hysteria, chlorosis, asthma	gr. x to ʒss.
Aurantii Baccæ	Stomachic	In dyspepsia, gout, &c.	℈j to ʒij.
——— Cortex	Stomachic	— — — —	— — —
Balsamum Peruvianum }	Stimulating and tonic	Asthma, gonorrhœa, dysentery	{ gr. x to ʒss.
——— Tolutanum }			gr. x to ʒss.
Belladonnæ Folia	Antispasmodic, deobstruent	In gout, paralysis, dropsy and jaundice	gr. ss to gr. vi.
Benzoinum	Pectoral	In chronic coughs	gr. x to ʒss.
Bismuth, Trisnitras	Antispasmodic	In gastrodynia	gr. v to gr. xv.
Cajeputi Oleum	Stimulant, antispasmodic	Hysteria, epilepsy, flatulent colic	♏j to ♏iv.

* The uses and doses of the other distilled waters nearly the same.

NAME.	EFFECTS.	USES.	DOSES.
Calumbæ Radix	Tonic	Diarrhœa, dysentery, dyspepsia,	gr. x to ℈j.
Cambogia	Cathartic and hydragogue	Dropsy	gr. ij to gr. viij.
Camphora	Stimulant, diaphoretic, narcotic	In typhoid affections, hysteria	gr. ij to gr. xv.
Canellæ Cortex	Stimulant and tonic	Dyspepsia, gout	gr. x to ʒ ss.
Cantharis	Stimulant, diuretic	Dropsy, gleet, &c.	gr. j to gr. iij.
Capsici Baccæ	Stimulant	Dyspepsia, gout	gr. v to gr. x.
Cardamines Flores	Stimulant, antispasmodic	In spasmodic diseases	℈j to ʒj.
Cardamomi Semina	Carminative	Dyspeptic affections	gr. v to ʒ ss.
Carui Fructus	Carminative, stomachic	In flatulent colic	gr. viij to ʒ ss.
Caryophylli ——— Oleum	Stimulant	In gout and dyspepsia	gr. v to ʒ ss. ♏j to ♏v.
Cascarillæ Cortex	Tonic	Intermittents and dyspepsia	gr. x to ʒ ss.
Cassiæ Pulpa	Laxative	In diseases of children	℥ ss to ℥j.
Castoreum	Antispasmodic, emmenagog.	Hysteria, chlorosis	gr. v to ℈j.
Catechu Extractum	Astringent	Diarrhœa, dysentery	gr. x to ℈ij.
Centaurii Cacumina	Tonic	Dyspepsia	gr. xv to ʒj.
Cerevisiæ Fermentum	Antiseptic	In typhus	f. ℥ ss.
Cetaceum	Demulcent	Dysentery and catarrh	℈j to ℈jss.
Cinchonæ Cordifoliæ Cortex ——Lancifoliæ Cortex ——Oblongifoliæ Cortex	Tonic, Antiseptic	Intermittent and typhoid fevers	gr. x to ʒjss.

NAME.	EFFECTS.	USES.	DOSES.
Cinnamomi Cortex	Stimulant	Dyspepsia	gr. v to ℈j.
——— Oleum	Stimulant	Cramps in the stomach	♏j to ♏iij.
Coccus	— — — — —	For colouring matter	— — —
Colchici Cormus	Diuretic, cathartic	Gout and rheumatism	gr. j to gr. v.
Colocynthidis Pulpa	Cathartic	Where purgatives are indicated	gr. j to gr. v.
Confectio Aromatica	Stimulant	— — —	gr. xx to ʒj.
——— Aurantii	Stomachic	Dyspepsia	ʒj to ℥j.
——— Cassiæ	Purgative	As a vehicle for more active medicines	ʒij to ℥j.
——— Opii	Narcotic, stimulant	— — —	gr. x to ʒss.
——— Piperis Nigri*	A hot carminative	In piles, in leuco-phlegmatic habits	ʒj to ʒij.
——— Rosæ Caninæ	— — — — —	These are employed as vehicles for forming more active medicines into pills and electuaries	ʒj to ℥j.
——— ——— Gallicæ			ʒj to ℥j.
——— Scammonii	A stimulating purgative	— — —	℈j to ʒj.
——— Sennæ	Laxative	— — —	ʒj to ʒiij.
Conii Folia	Narcotic	Scirrhus and cancer	gr. ij to ℈j.
Contrajervæ Radix	Tonic, diaphoretic, stimulant	In typhoid affections—in gout	gr. x to ʒss.
Copaiba	Stimulant and diuretic	In gonorrhœa, gleet, leuchorrhœa	♏viij to f. ʒj.
Coriandri Fructus	Stomachic	Flatulency	℈j to ʒj.

* This is a substitute for Ward's Paste.

NAME.	EFFECTS.	USES.	DOSES.
Creasoton	Stimulant, antiseptic	In cases of debility; to prevent nausea	♏j to ♏iv.
Creta Præparata	Antacid	In acidity of the primæ viæ	gr. x to ℈iv.
Cubeba	Stimulant, diuretic	Gonorrhœa and gleet	℈j to ʒjss.
Cupri Ammonio-Sulphas	Tonic, antispasmodic	In chorea and epilepsy	gr. ¼ to gr. iv.
Cupri Sulphas	Emetic, tonic	Only externally as an escharotic, has been given in incipient phthisis	gr. ¼ to gr. ij. tonic. gr. v to gr. xv. emetic.
Cuspariæ Cortex	Tonic	Intermittents, dyspepsia, gout	gr. x to gr. xx.
Cymini Fructus	Carminative	In flatulence	℈j to ʒj.
Dauci Fructus	Stomachic	In flatulence	℈j to ʒj.
Decoct. Aloes Comp.	Laxative	— — — —	f. ℥ss to f. ℥j.
—— Cetrariæ	Tonic	Phthisis, general debility	f. ℥j to f. ℥iv.
—— Chimaphilæ	Diuretic	Dropsy, urinary affections	f. ℥j to f. ℥ij.
—— Cinchonæ	Tonic	Intermittents, debility	f. ℥j to f. ℥iij.
—— Dulcamaræ	Diuretic, deobstruent, emetic	In lepra, scrofula, jaundice, dropsy	f. ℥ss to f. ℥j.
—— Granati	Astringent	In dysentery, also in tænia	f. ℥ss to f. ℥j.
—— Sarsæ	Alterative	Syphilis	f. ℥iv to f. ℥viij.
———— Compos.	Diaphoretic and alterative	Secondary syphilis, rheumatism	f. ℥iv to f. ℥viij.
—— Scoparii Compos.	Diuretic	Dropsy	f. ℥j to f. ℥iss.
—— Senegæ	Expectorant, diuretic	Bronchitis with much mucus	f. ℥jss to f. ℥iij.
—— Tormentillæ	Astringent	In diarrhœa	f. ℥j to f. ℥iss.
—— Ulmi	Diuretic	In herpetic eruptions	f. ℥iv to f. ℥vi.

NAME.	EFFECTS.	USES.	DOSES.
——— Uvæ Ursi	A bitter tonic	Affections of the urinary organs	f. ℥j to f. ℥ij.
Digitalis Folia	Diuretic, sedative	Dropsy, pulmonary and cardiac affections	gr. ss to gr. iij.
Extractum Aconiti	Narcotic, diaphoretic	Sciatica, intermittents with visceral disease, chronic rheumatism	gr. j to gr. ij.
——— Aloes purificatum	Cathartic	— — — —	gr. v to gr. xv.
——— Cinchonæ Cardifoliæ	Tonic	— — — —	gr. x to ʒss.
——— Colchici Aceticum	Similar to the Acetum Colchici in its effects and uses	— — — —	gr. ss to gr. ij.
——— Colocynthidis Comp.	Cathartic	— — — —	gr. x to ʒss.
——— Elaterii	Cathartic and hydragogue	Dropsy	gr. ss to gr. ij.
——— Gentianæ	Tonic	In dyspepsia and as a vehicle	gr. x to ʒss.
——— Hæmatoxyli	Astringent	In dysentery and diarrhœa	gr. x to ʒss.
——— Hyoscyami	Sedative and antispasmodic	Where an anodyne is required	gr. v to gr. x.
——— Jalapæ	Hydragogue, cathartic	Dropsy	gr. x to gr. xx.
——— Lactucæ	Sedative and anodyne	Where anodynes are required	gr. v to gr. x.
——— Lupuli	Sedative	In articular rheumatism	gr. v to gr. xx.
——— Opii purificatum	Narcotic	Where the continued action of opium is required	gr. j to gr. iv.
——— Papaveris	Anodyne	— — — —	gr. ij to ℈j.
——— Pareiræ	Deobstruent	Visceral obstructions	gr. x to ʒss.

NAME.	EFFECTS.	USES.	DOSES.
Extractum Rhei	Purgative	— — — —	gr. x to gr. xxx.
—— Sarzæ	Alterative	Syphilis and chronic rheumatism	℈j to ʒj.
—— Stramonii	Anodyne and antispasmodic	In chronic disease with acute pain	gr. ½ to gr. jss.
—— Taraxaci	Laxative and deobstruent	In visceral obstructions	gr. x to ʒj.
—— Uvæ Ursi	Same as the Decoct. Uvæ, &c. which see	— — — —	gr. x to ℈j.
Ferri Ammonio-Chloridum	Tonic, emmenagogue, aperient	In epilepsy, hysteria, chlorosis	gr. iij to gr. xij.
—— Iodidum	Stimulant, tonic	Dyspepsia, chlorosis, amenorrhœa	gr. j to gr. iij.
—— Potassio-tartras	Tonic and deobstruent	In cases where chalybeates are indicated	gr. x to ʒss.
—— Sesquioxidum	Tonic	In amenorrhœa and rickets	gr. j to gr. iv.
—— Sulphas	Tonic, anthelmintic	Amenorrhœa, worms	gr. ss to gr. iv.
Fœniculi Fructus	Carminative	In flatulence	℈j to ʒj.
Galbani Gummi-Resina	Stimulant	In chronic catarrh and rheumatism	gr. v to ℈j.
Gentianæ Radix	Tonic, stomachic	In dyspepsia, gout, etc.	gr. x to ʒj.
Glycyrrhiza	Demulcent	In catarrh	ʒss to ʒj.
Granati Cortex	Astringent	Diarrhœa and dysentery	℈j to ʒj.
Guaiaci Resina	Stimulant, diaphoretic	Chronic rheumatism, skin diseases	gr. x to ʒss.
Hæmatoxyli Lignum	Astringent	Diarrhœa and dysentery	℈j to ʒj.

NAME.	EFFECTS.	USES.	DOSES.
Hellebori Radix	Cathartic	In melancholia, amenorrhœa	gr. x to ʒ ss.
Hydrargyri Bichloridum	Alterative	Syphilis	gr. ⅛ to gr. ¼.
——— Biniodidum	Alterative	Scrofula combined with syphilis	gr. ½ to gr. j.
——— Binoxydum	Alterative, purgative	But little used	gr. ss to gr. j.
——— Chloridum	Alterative, antisyphilitic, purgative,	In syphilis, hepatic affections, and in diseases of children	gr. ss to gr. j, altera. gr. ij to gr. x, purg.
——— Iodidum	See Hydrar. Biniodidum	— — — —	— — —
——— Oxydum	Alterative	— — — —	gr. j to gr. ij.
—Sulphur. cum Sulphur.	Alterative	— — — —	gr. v to ℈j.
——— Cum Creta	Alterative and antacid	In the bowel complaints of children	gr. iij to gr. v.
Infusum Anthemidis	When cold, tonic; warm, emetic	— — — —	f. ℥j to f. ℥ij.
——— Armoraciæ Comp.	Stimulant, diuretic	Paralysis, scurvy, rheumatism, dropsy	f. ℥j to f. ℥iij.
——— Aurantii Comp.	Carminative, stimulant	Dyspepsia, flatulent colic, gout	f. ℥j to f. ℥ij.
——— Calumbæ	Tonic	Dyspepsia	f. ℥jss to f. ℥iij.
——— Caryophylli	Stimulant and stomachic	Flatulence	f. ℥jss to f. ℥ij.
——— Cascarillæ	Tonic and stomachic	Diarrhœa and aphthæ of children	f. ℥jss to f. ℥ij.
——— Catechu Comp.	Astringent	Diarrhœa	f. ℥jss to f. ℥ij.
——— Cinchonæ	Tonic	Dyspepsia and convalescence from fevers	f. ℥j to f. ℥iij.
——— Cuspariæ	Tonic, antiseptic	Bilious diarrhœa and dysentery	f. ℥j to f. ℥iij.

NAME.	EFFECTS.	USES.	DOSES.
Pil. Ferri Comp.	Tonic	Griffith's mixture in a solid form and used in the same cases	gr. x to ℈j.
— Galbani Comp.	Emmenagogue, antihysteric	Hysteria, chlorosis	gr. x to ℈j.
— Hydrargyri	Alterative, purgative	— — — —	Ac. to circumstances.
——— Chloridi Comp.	— — — — —	— — — —	gr. v to gr. x.
——— Iodidi	Alterative	In scrofula	gr. iv to gr. x.
— Ipecacuanhæ Comp.	Sudorific	In rheumatism	gr. v to gr. x.
— Rhei Comp.	Laxative	— — — —	gr. x to gr. xx.
— Sagapeni Comp.	Laxative	In colicky pains	gr. v to gr. x.
— Sap. Comp.	Anodyne	— — — —	gr. iij to gr. x.
— Scillæ Comp.	Diuretic and expectorant	In chronic bronchitis	gr. x to ℈j.
— Styracis Comp.	Expectorant	In chronic catarrhs	gr. iij to gr. x.
Pimentæ Baccæ	Stimulant	Dyspepsia, gout	gr. v to ℈j.
Piper. Cubeba	Stimulant and diuretic	Gonorrhœa, gleets	℈j to ʒiss.
Plumbi Acetas	Astringent	Given internally in hæmorrhages, as a wash in external inflammation, and as a collyrium	gr. ss to gr. j.
——— Iodidum	Discutient	In indolent swellings, and as an ointment	gr. ¼ to gr. ½.
Potassæ Acetas	Diuretic	In dropsy	℈j to ʒj.
——— Bicarbonas	Antacid and diuretic	In effervescing draughts	gr. x to ʒss.
——— Bisulphas	Purgative	Combined with other purgatives for children	gr. x to ʒiij.

NAME.	EFFECTS.	USES.	DOSES.
—— Bitartras	Purgative and diuretic	In dropsy	ʒj to ʒiv.
—— Carbonas	Antacid and diuretic	In effervescing draughts	gr. x to ʒss.
—— Nitras	Diaphoretic	— — — —	gr. x to ʒss.
—— Sulphas	Purgative	Combined with other purgatives, as rhubarb	gr. x to ʒss.
—— Tartras	Purgative	Corrects the griping caused by other purgatives	ʒj to ʒvi.
Potassii Bromidum	Deobstruent	In infarctions of the abdominal viscera	gr. iij to gr. x.
—— Iodidum	Alterative	In secondary syphilis	gr. v to gr x.
—— Sulphuretum	Detergent	As a lotion for itch	— — —
Pulvis Aloes Compositus	Purgative and diaphoretic	— — — —	gr. x to ℈j.
—— Cinnamomi Compos	Carminative	Flatulence, and to correct the griping properties of other substances	gr. v to ℈j.
—— Cretæ Compos.	Antacid and astringent	Diarrhœa from acidity	gr. v to ℈j.
—— Cretæ Compos. cum Opio	Astringent	The same	gr. v to ʒss.
—— Jalapæ Compos.	Purgative	— — — —	℈j to ℈ij. for adults. gr. x to gr. xij. for children
—— Ipecacuanhæ Comp.	Sudorific	Rheumatism	gr. v to ℈j.
—— Kino Compos.	Astringent	Diarrhœa	gr. v to ℈j.
—— Scammonii Compos.	Cathartic	Where active purging is required	gr. v to ℈j.

NAME.	EFFECTS.	USES.	DOSES.
Spiritus Carui	Carminative	To correct the griping caused by purgatives	f. ʒj to f. ʒiv.
—— Cinnamomi	Stimulant and stomachic	Flatulency	The same.
—— Juniperi Compos.	Diuretic and stimulant	Combined with other diuretics	The same.
—— Menthæ Piperitæ			
—— —— Pulegii			
—— —— Viridis	Stimulant and carminative	— — — —	f. ʒij to f. ʒiv.
—— Myristicæ			
—— Pimentæ			
Stannum	Anthelmintic	— — — —	ʒj to ℥ss.
Strychnia	— — — — —	In paralysis	gr. $\frac{1}{16}$ to gr. $\frac{1}{8}$.
Sulphur	— — — — —	— — — —	ʒj to ʒij.
Syrupus Papaveris	Sedative	Usually given to children	f. ʒj to f. ℥j.
—— Rhamni	Cathartic	In dropsy	f. ℥ss to f. ℥j.
—— Sarzæ	The same as the root	— — — —	f. ʒj to f. ℥ss.
—— Sennæ	Purgative	For children	f. ʒij to f. ʒiv.
—— Zingiberis	Stimulant	To impart an agreeable flavour to bitter infusions	— —
Tamarindi Pulpa	Laxative	In febrile affections	ʒj to ℥j.
Terebinth. Canadensis			
—— Chia	Stimulant, diuretic, cathartic	In gleets, leucorrhœa, etc.	℈j to ʒj.
—— Vulgaris			
—— Oleum	Stimulant, diuretic, cathartic, anthelmintic	In epilepsy, tape-worm	gutt. x to ℥j.

NAME.	EFFECTS.	USES.	DOSES.
Tiglii Oleum	Cathartic	In obstinate constipation, apoplexy	♏j to ♏ij.
Tinctura Aloes	Purgative	Combined with decoct. al. comp.	f. ʒij to f. ʒvi.
——— Compos.	Cathartic and emmenagogue	In cold languid habits and in chlorosis	f. ʒij to f. ʒiv.
— Ammoniæ Comp.	Stimulant and antispasmodic	— — — —	♏x to ♏xxx.
— Assafœtidæ	Antispasmodic and stimulant	In cases where assafœtida itself is useful	f. ʒss to f. ʒjss.
— Aurantii	Tonic and stomachic	As an adjunct to bitter infusions	f. ʒj to f. ʒiij
— Balsami Tolutani	Expectorant	In old catarrhs	— — —
— Benzoini Comp.	Stimulant and antispasmodic	In catarrh and externally in wounds	f. ʒss to f. ʒij.
— Calumbæ	Tonic	Dyspepsia	f. ʒss to f. ʒiv.
— Camphoræ	Discutient	In rheumatic pains, tumours	— — —
——— Compos.	Sedative	Catarrh, asthma	f. ʒj to f. ʒiij.
— Cantharidis	A stimulating diuretic	Gleet, often used externally in rheumatic pains	♏x to f. ʒj.
— Capsici	Stimulant	In typhoid affections, cynanche	f. ʒss to f. ʒij.
— Cardamomi } ——— Comp. }	Carminative	To correct the griping effects of other medicines	} f. ʒj or more.
— Cascarillæ	Tonic	Dyspepsia, etc.	f. ʒj. to f. ʒiv.
— Castorei	Antispasmodic	Hysteria	♏x. to f. ʒij.
— Catechu	Astringent	Diarrhœa	f. ʒj.

NAME.	EFFECTS.	USES.	DOSES.
Tinctura Cinchonæ / ——— Comp.	Tonic	Intermittents, debility	f. ʒj to f. ʒiij.
——— Cinnamomi / ——— Comp.	Stomachic	Combined with chalk mixture and other medicines in diarrhœa, etc.	f. ʒj to f. ʒiij.
——— Colchici / ——— Comp.	Diuretic	Rheumatism and gout	♏xx to ♏xxx.
——— Conii	Narcotic and antispasmodic	Where conium itself is useful	f. ʒss to ʒj.
——— Cubebæ	Stimulant and diuretic	Gonorrhœa	f. ʒss to f. ʒj.
——— Digitalis	Sedative, diuretic	In heart affections, dropsy	♏x to f. ʒss.
——— Ferri Ammonio-chloridi	Tonic, emmenagogue	Hysteria, chlorosis	f. ʒss to f. ʒij.
——— Sesquichloridi	Tonic, diuretic	Scrofula, dysuria	♏x to f. ʒj.
——— Gallæ	Astringent	As a re-agent for the detection of metals in solution	♏xx to f. ʒij.
——— Gentianæ Comp.	Tonic and stomachic	As an adjunct to the infus. gent. comp.	f. ʒj to f. ʒij.
——— Guaiaci / ——— Comp.	Stimulant and diaphoretic	In rheumatism	f. ʒj to f. ʒiij. / f. ʒss to f. ʒj.
——— Hellebori	Emmenagogue	Amenorrhœa	♏xxx to f. ʒj.
——— Hyoscyami	Narcotic	To procure sleep	f. ʒss to f. ʒij.
——— Jalapæ	Cathartic	— — — —	f. ʒj to f. ℥ss.
——— Kino	Astringent	Diarrhœa	f. ʒj to f. ʒij.
——— Lavand. Comp.	Stomachic and stimulant	In fainting	f. ʒss to f. ʒij.

NAME.	EFFECTS.	USES.	DOSES
——— Lupuli	Sedative, tonic	— — — —	f. ʒss to f. ʒij.
——— Myrrhæ	Tonic	Chiefly used externally	f. ʒss to f. ʒj.
——— Opii	Sedative	To allay pain and induce sleep	♏x to ♏xl.
——— Rhei Composita	Stomachic and purgative	— — — —	f. ʒij to ℥jss.
——— Scillæ	Diuretic, expectorant	Dropsy, catarrh	♏x to f. ʒss.
——— Sennæ Compos.	Cathartic	As an adjunct	f. ʒij to f. ℥j.
——— Serpentariæ	Tonic and diaphoretic	In typhoid affections	f. ʒj to f. ʒiij.
——— Valerianæ }	Antispasmodic	As an adjunct to the inf. valer.	{ f. ʒj to f. ʒiij.
——— Comp. }			{ f. ʒss to f. ʒj.
——— Zingiberis	Stimulant and carminative	As an adjunct to griping purgatives	f. ʒj to f. ʒij.
Tormentillæ Radix	Astringent	Intermittents, diarrhœa	gr. x to ʒss.
Tragacantha	Demulcent	In catarrh, diarrhœa	gr. x to ʒj.
Valerianæ Radix	Antispasmodic	Hysteria, epilepsy	℈j to ℈ij.
Veratria	Alterative	Gout and rheumatism	gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$.
Veratri Radix	Errhine	Amaurosis	gr. ij to gr. v.
Vinum Aloes	Stomachic and purgative	— — — —	f. ʒj to f. ʒij. stomachic. f. ℥j to f. ℥ij, as a purge.
——— Antim. Potassio-tartratis	Emetic and diaphoretic	Generally given to children	f. ʒij to f. ℥j. as an emetic. f. ʒj to f. ʒij. a diaphoretic.

NAME.	EFFECTS.	USES.	DOSES.
Vinum Colchici	Diuretic	In gout	♏xxx to f. ʒj.
—— Ipecacuanhæ	Diaphoretic, emetic	Used in diseases of children	♏xx to ♏xl. as a diaphoretic. f. ʒij to f. ʒiv. as an emetic.
—— Opii	Anodyne	— — — —	♏x to f. ʒj.
—— Veratri	Cathartic	Gout	♏v to ♏x.
Uvæ Ursi	Tonic	In diseases of the urinary organs	gr. x to ʒj.
Zinci Oxydum	Tonic	— — — —	gr. j to gr. vj. in a pill,
—— Sulphas	Tonic	— — — —	gr. j to gr. ij.
	Emetic	— — — —	gr. x to ʒss.

CHEMICAL DECOMPOSITIONS.

ACETUM DESTILLATUM.

Material.—Common vinegar, which contains acetic acid, alcohol, colouring matter, mucilage, water and sulphuric acid.

Result.—Distilled vinegar, consisting of the above constituents, with the exception of the colouring matter and sulphuric acid, which are removed by distillation.

ACIDUM ACETICUM.

Consisting of oxygen 3 parts, $8 \times 3 = 24$; carbon 4, $6 \times 4 = 24$; and hydrogen 3, $1 \times 3 = 3$; equivalent 51.

Materials.—Acetate of soda,
Sulphuric acid,
Distilled water,

Products.—Acetic acid, which rises condensed with the water, and *sulphate of soda*, which remains.

Decomposition.—The sulphuric acid having a greater affinity for the soda than acetic acid has, decomposes the acetate of soda—the acetic acid rises, and is condensed with the water, and sulphate of soda remains behind.

ACIDUM BENZOICUM.

Consisting of oxygen, hydrogen, and carbon.

Material.—Benzoin.

Results.—Benzoic acid, and resin.

Process.—The benzoic acid contained in the benzoin, mixed with resin, &c., is here volatilized, and condensed. The oily matter which rises with the acid, is separated by being pressed between folds of bibulous paper, and again sublimed.

ACIDUM CITRICUM.

Consisting of oxygen, hydrogen, and carbon.

Materials.—Lemon juice,
Prepared chalk,
Dilute sulphuric acid,
Distilled water.

Products.—Sulphate of lime which subsides from its sparing solubility, and citric acid which remains in solution.

Decompositions.—When the chalk, or carbonate of lime, is added to the lemon juice, which consists of citric acid and mucilage, the carbonic acid of the carbonate of lime is expelled, from the greater affinity of the citric acid for the lime, and a citrate of lime is formed—this being but sparingly soluble in water, falls down as a white powder, the mucilage of the lemon juice being nearly all held in solution. The so-formed citrate of lime is washed repeatedly to

remove any remaining mucilage. When the sulphuric acid is poured on the citrate of lime, a decomposition takes place from the greater affinity of the sulphuric acid for lime, a sulphate of lime is formed which subsides from its sparing solubility, while the citric acid remains in solution. The citric acid is then obtained in crystals by evaporation: repeated solution and crystallization are directed in order to obtain the crystals free from colour.

ACIDUM HYDROCHLORICUM.

Consisting of chlorine and hydrogen.

Materials.—Chloride of sodium,
Sulphuric acid,
Distilled water.

Products.—Liquid hydrochloric acid,
Sulphate of soda.

Decomposition.—The chloride of sodium consists of chlorine and sodium—the liquid, sulphuric acid, of dry sulphuric acid and water—this water of hydrogen and oxygen; when the liquid sulphuric acid and chloride of sodium act on each other, the water of the former, and the chloride of sodium, are mutually decomposed; the hydrogen of the water unites with the chlorine of the chloride of sodium, forming hydrochloric acid gas, which passes over and is condensed in the receiver, whilst the oxygen of the water combines with the sodium and forms soda—with this soda the sulphuric acid combines, forming sulphate of soda.

ACIDUM HYDROCYANICUM DILUTUM.

Hydrocyanic acid gas consists of hydrogen and cyanogen.

Materials.—Ferro-cyanide of potassium,
Sulphuric acid,
Distilled water.

Results.—Hydrocyanic acid,
Bisulphate of potash,
Cyanide of iron and cyanide of potassium.

Process.—Ferro-cyanide of potassium consists of cyanide of potassium and cyanide of iron; when the sulphuric acid is heated with the ferro-cyanide of potassium, the following changes occur: one of the constituents of the ferro-cyanide of potassium, viz. the cyanide of potassium, is partly decomposed, as is also a portion of the water; the oxygen of the latter combines with the potassium, forming potash, which uniting with the sulphuric acid forms a bisulphate of potash; the hydrogen of the decomposed water combines with the cyanogen of the decomposed cyanide of potassium and forms hydrocyanic acid, the undecomposed cyanide of potassium combines with the cyanide of iron (the other constituent of the ferro-cyanide of potassium) and forms a yellow salt.

EXTEMPÔRANEOUS PREPARATION OF HYDROCYANIC ACID

Materials.—Cyanide of silver,
Hydrochloric acid,
Distilled water.

Products.—Hydrocyanic acid in solution,
Chloride of silver.

Decompositions.—Cyanide of silver consists of cyanogen and silver—hydrochloric acid of hydrogen and chlorine—when these are mixed, double decomposition takes place, the products of which are chloride of silver (insoluble), and hydrocyanic acid, (dissolved).

ACIDUM NITRICUM.

Consisting of oxygen and nitrogen.

Materials.—Nitrate of potash,
Sulphuric acid.

Products.—Liquid nitric acid,
Bisulphate of potash.

Process.—Double decomposition takes place: the sulphuric acid decomposes the nitrate of potash, combines with the potash, forming a bisulphate of potash which remains in the retort, the nitric acid rises in vapour and combines with some of the water of the liquid sulphuric acid, and so forms liquid nitric acid. In consequence of the absolute quantities of nitric and sulphuric acid employed being equal, there are two equivalents of the acid to one of base, and hence the newly formed salt in the retort is a bisulphate of potash.

ACIDUM PHOSPHORICUM DILUTUM.

Phosphoric acid consists of phosphorus and oxygen.

Materials.—Phosphorus,
Nitric acid,
Distilled water.

Products.—Nitric oxide gas,
Phosphoric acid.

Decomposition.—The nitric acid, consisting of nitrogen and oxygen, is partially decomposed by the phosphorus; a part of its oxygen combines with the phosphorus, forming phosphoric acid, whilst another portion of it combines with the nitrogen of the nitric acid, and forms nitrous oxide.

ACIDUM TARTARICUM.

Consisting of oxygen, hydrogen, and carbon.

Materials.—Bitartrate of potash,
Boiling distilled water,
Prepared chalk,
Diluted sulphuric acid,
Hydrochloric acid.

Products of the *first part* of process:—
Tartrate of potash (in solution),
Tartrate of lime (insoluble).

——— of the *second part* :—
Chloride of potassium (dissolved),
Tartrate of lime (insoluble).

——— of the *third part* :—
Tartaric acid (in solution),
Sulphate of lime (undissolved).

Process.—*In the first part* one half the tartaric acid of the bitartrate of potash, combines with the lime of the chalk or carbonate of lime, carbonic acid is expelled, and an insoluble tartrate of lime is formed, whilst a neutral tartrate of potash remains in solution.

In the second part of the process the dissolved chloride of calcium (formed by dissolving the remainder of the chalk in hydrochloric acid) decomposes the neutral tartrate of potash; the oxygen of the potash goes to the calcium, forming lime, which unites with tartaric acid of the tartrate of potash, forming a tartrate of lime which is precipitated, whilst the chlorine of the chloride of calcium unites with the potassium forming chloride of potassium, which is held in solution.

In the third part, the tartrate of lime now formed is mixed with the dilute sulphuric acid by which it is decomposed, an insoluble sulphate of lime is thrown down and tartaric acid is held in a state of solution. From this solution crystals are obtained by evaporation, which are freed from colouring matter by the repeated solution and crystallization.

ÆTHER SULPHURICUS.

Materials.—Rectified spirit,
Sulphuric acid,
Carbonate of potash.

Products.—Sulphuric acid and water (in the retort) and sulphuric æther (distilled over).

Process.—Various theories have been proposed to account for the formation of æther. According to Fourcroy and Vauquelin, the sole principle concerned in its formation is the well-known attraction of sulphuric acid for water, by which the alcohol is directly converted into æther. This will be made plainer by comparing the composition of alcohol and æther; thus:—

	Carbon.		Oxygen.		Hydrogen.	
2 equivs. of alcohol	=24	+	16	+	6	=46
1 equiv. of æther	=24	+	8	+	5	=37
Difference			8	+	1	= 9 water.

According to Mr. Hennel the process consists of two distinct parts, namely, the formation of sulpho-vinic acid, and the subsequent decomposition of that acid under the joint agency of heat and sulphuric acid. The sulpho-vinic acid is produced, by the aStion of strong sulphuric acid on alcohol—it may be considered as a bisulphate of alcohol—when this is subjected to the action of heat, it is decomposed, sulphuric acid and water remain in the retort, and the æther is distilled over. Berzelius considers æther as a *protoxide of ethereum:* the latter a supposed compound consisting of 4 of carbon and 5 of hydrogen.

The object of shaking the æther with the carbonate of potash as described, is for the purpose of neutralizing any sulphurous acid which is generally present, and also to get rid of any alcohol.

OLEUM ÆTHEREUM.

Materials.—Rectified spirit,
Sulphuric acid,
Solution of potash,
Distilled water.

Results.—Æther, water, sulphurous acid, and æthereal oil.

Process.—How the æther and water come to be generated here, may be seen from the preceding preparation; the sulphurous acid arises from the mutual decomposition of some of the sulphuric acid and alcohol: the black froth is charcoal, deposited from the spirit. The yellow, oily fluid is exposed to the air, in order to be freed by evaporation from any æther, and the solution of potash is employed to remove any sulphurous acid.

SPIRITUS ÆTHERIS NITRICI.

Materials.—Rectified spirit,
Nitric acid.

Products.—Hyponitrous æther, etc. etc. etc.

Process.—Here the nitric acid and alcohol are both decomposed. The nitric acid loses part of its oxygen, and is converted into hyponitrous acid, which combines with the æther that is formed, giving rise to hyponitrous æther, consisting of

One equivalent of hyponitrous acid	=	38
———————— æther	=	37
Equivalent		75

ALKALINA.

ACONITINA.

Consisting of hydrogen, oxygen, and nitrogen.

Materials.—Root of aconite,
Rectified spirit,
Dilute sulphuric acid,

Solution of ammonia,
Animal charcoal.

The vegetable alkali aconitine exists in aconite, combined with some vegetable acid; this vegetable salt is soluble in alcohol, with a part of the colouring matter. By repeated boiling in rectified spirit, by distillation of the liquors so obtained, and by evaporation, a substance is obtained, possessing the consistence of an extract; this is dissolved in water; the solution is strained, and sulphuric acid is added, which dissolves the aconitine; on the addition of ammonia, the aconitine is precipitated; this is again dissolved in dilute sulphuric acid and water; animal charcoal is mixed with it to remove the colouring matter; ammonia is again employed, which throws down the aconitine, which is then washed and dried.

ALKALIES.

LIQUOR AMMONIÆ.

Consisting of ammonia and water.

Materials.—Hydrochlorate of ammonia,
Lime,
Water.

Products.—Ammonia and water,
Chloride of calcium.

Process.—The hydrochlorate of ammonia and the lime or oxide of calcium act on each other; the ammonia is given off in the state of gas; the hydrochloric acid (consisting of hydrogen and chlorine) is decom-

posed, as is also the lime, or oxide of calcium: the hydrogen of the former combines with the oxygen of the latter so as to form water, which is vaporized with the water, whilst the chlorine and calcium unite, forming chloride of calcium, which remains in the retort.

AMMONIÆ SESQUICARBONAS.

Consisting of ammonia, carbonic acid and water.

Materials.—Hydrochlorate of ammonia,
Chalk.

Products.—Sesquicarbonate of ammonia,
Chloride of calcium.

Decomposition.—The hydrochlorate of ammonia and carbonate of lime are mutually decomposed. During the process some of the ammonia disengaged and of the water which is formed are dissipated, so that the carbonate of ammonia sublimed consists of three equivalents of carbonic acid and only two of ammonia, thus constituting it a sesquicarbonate of ammonia.

MORPHIA.

Materials.—Hydrochlorate of morphia,
Solution of ammonia,
Distilled water.

Products.—Hydrochlorate of ammonia and morphia.

Decomposition.—The solution of ammonia decomposes the hydrochlorate of morphia; the ammonia

combines with the hydrochloric acid, and the morphia is thrown down.

Acetas morphiæ.—This is formed by the direct combination of acetic acid with morphia.

MORPHIÆ HYDROCHLORAS.

Materials.—Opium,
Crystals of chloride of lead,
Purified animal charcoal,
Hydrochloric acid,
Distilled water,
Solution of ammonia.

Products.—Hydrochlorate of morphia, meconate of lead with some sulphate of lead.

Process.—Opium contains morphia combined with meconic acid, i. e. meconate of morphia. When the chloride of lead in solution is added to the solution of meconate of morphia obtained in the first step of the process, this chloride decomposes and is decomposed by the water, the hydrogen of which combines with the chlorine forming hydrochloric acid, and the oxygen with the lead forming oxide of lead. The morphia of the meconate unites with the hydrochloric acid forming hydrochlorate of morphia, which is held in solution, whilst the meconic acid combines with the lead, forming meconate of lead, which is precipitated. As the liquor poured off from the crystals contains a quantity of hydrochlorate of morphia in solution, the addition of the ammonia decomposes this and pre-

cipitates the morphia; to this hydrochloric acid is added, and a hydrochlorate of morphia is obtained by evaporation. Animal charcoal is used in order to obtain the salt colourless.

Propert.—Colourless, inodorous, bitter salt, in plumose acicular crystals; soluble in 16 or 20 times its weight of water; soluble in alcohol.

QUINÆ DISULPHAS.

(*Disulphate of Quina*).

Materials.—Heart-leaved cinchona,
Sulphuric acid,
Purified animal charcoal,
Hydrated oxide of lead,
Solution of ammonia,
Distilled water.

Products.—Sulphate of lead, kinate of ammonia, and disulphate of quina.

Process.—The quina exists combined with kinic acid in the bark, forming a kinate of quina. This is soluble in water, its solubility being further increased by adding sulphuric acid. The solution in the first instance containssulphuric and kinic acids and quina, together with extractive and colouring matter; for the purpose of removing the latter animal charcoal is employed—on adding the oxide of lead, the sulphuric acid combines with it, forming sulphate of lead which is precipitated and separated, and the kinic acid and quina are held in solution—when the ammonia is now added, after the separation of sulphate of lead, it com-

bines with the kinic acid, forming a kinate of ammonia, and quina is precipitated; the quina is then made to combine with sulphuric acid forming a disulphate of quina which crystallizes.

STRYCHNIA.

Materials.—Nux vomica,
Rectified spirit,
Diluted sulphuric acid,
Magnesia,
Solution of ammonia.

Products.—Sulphate of ammonia,—strychnia.

Process.—Besides containing colouring matter, gum, starch, wax and lignin, nux vomica also contains strychnate of strychnia and strychnate of brucia; when it is powdered and digested in alcohol, the vegetable salt is dissolved, the alcoholic solution is evaporated to the consistence of an extract, and to this magnesia is added, which decomposes the strychnate of strychnia, a strychnate of magnesia is formed, with which the strychnia remains mixed; this is boiled in spirit, which dissolves the strychnia; distillation being then employed, the strychnia is left behind, which combines with the sulphuric acid, and a sulphate of strychnia is formed; this is dissolved in water and decomposed by ammonia, which combines with the sulphuric acid, the strychnia being precipitated; this is again dissolved in boiling spirit, and set aside so that crystals may form.

VERATRIA.

Materials.—Cevadilla.
Rectified spirit,
Diluted sulphuric acid,
Solution of ammonia,
Purified animal charcoal,
Magnesia.

Products.—Sulphate of ammonia and veratria.

Cevadilla contains veratria combined with gallic acid, as also colouring matter, etc.; the gallate of veratria is dissolved by being boiled in the spirit. The alcohol being distilled off, and the residue being treated with sulphuric acid, sulphate of veratria is formed; the addition of magnesia decomposes this, and sets free the veratria, which is digested in and dissolved by the spirit, by which process the veratria is separated from much of the extraneous matter mixed with it; the spirit is then drawn off by distillation, and sulphuric acid and animal charcoal are added, by which sulphate of veratria is formed, and decolourized; the addition of ammonia decomposes the sulphate of veratria, sulphate of ammonia is formed, and the veratria is precipitated.

CARBO ANIMALIS PURIFICATUS.

Materials.—Animal charcoal,
Hydrochloric acid,
Water.

Products.—Phosphate of lime and chloride of calcium in solution, and charcoal.

The hydrochloric acid is used in order to separate the phosphate and carbonate of lime from the charcoal.

CORNU USTUM.

In the process here employed the entire of the gelatin of the horn is dissipated, a pure phosphate of lime being left.

METALLICA.

ALUMEN EXSICCATUM.

When the alum is subjected to heat, it fuses in its water of crystallization; this is driven off from it, and it then becomes spungy and opaque.

Use.—As an astringent, internally in hemorrhages and other discharges, and also externally in lotions and collyria. Dose, gr. x to ℈j.

Tests.—Its entire solubility in water, the solubility of the precipitate occasioned by ammonia or potash in an excess of the latter, prove the absence of uncombined earthy matter.

ANTIMONII OXYSULPHURETUM.

Materials.—Sesquisulphuret of antimony,
Solution of potash,
Distilled water,
Diluted sulphuric acid.

Results.—Oxysulphuret of antimony and sulphate of potash.

Process.—When the sesquisulphuret of antimony and the solution of potash are boiled together, a small

portion of each is decomposed, and there are produced a sesquioxide of antimony and sulphuret of potassium with sesquisulphuret of antimony dissolved in the potash. The sulphuric acid, when added, combines with the solution of potash, forming sulphate of potash, which remains in solution, the oxide and sulphuret of antimony are precipitated, forming oxysulphuret of antimony. The sulphuric acid also decomposes the water, the hydrogen of which combines with the sulphur of the sulphuret of potassium, forming hydrosulphuric acid, which is expelled in the gaseous form, its oxygen combines with the potassium, forming potash, with which the sulphuric acid combines, forming sulphate of potash.

ANTIMONII POTASSIO-TARTRAS.

Materials.—Sesquisulphuret of antimony,
Nitrate of potash,
Bitartrate of potash,
Hydrochloric acid,
Distilled water.

Results.—Potassio-tartrate of antimony, and some sulphuret of antimony.

Process.—When the sesquisulphuret of antimony and the nitrate of potash are ignited together, both are decomposed, some of the sulphur of the sulphuret combines with some of the oxygen of the nitric acid forming sulphuric acid, which latter forms sulphate of potash with the potash of the decomposed nitrate; another portion of the oxygen of the decomposed nitric

acid combines with the antimony of the decomposed sulphuret, forming an oxide of antimony,—hydrochloric acid is added to prevent the formation and presence of free potash and sulphuret of potassium; for it saturates the potash, and either prevents the formation of the sulphuret, or decomposes it when formed. By the washing that is directed the sulphate and hydrochlorate of potash are removed, and the residue is a mixture of sesquioxide and sulphuret of antimony.

When the bitartrate is boiled with this residue, one equivalent of the tartaric acid of the bitartrate combines with two equivalents of the sesquioxide of antimony, forming a bitartrate of antimony, whilst the sulphuret of antimony remains unchanged, so that the boiled solution contains two equivalents of carbonic acid, two of seequioxide of antimony, and one of potash, which combining form the double salt called potassio-tartrate of antimony.

PULVIS ANTIMONII COMPOSITUS.

Materials.—Sesquisulphuret of antimony,
Horns shaved.

Results.—Binoxide of antimony, or antimonious acid, and phosphate of lime.

Process.—When the sulphuret of antimony and the horn-shavings are thrown into the crucible which is red hot in the fire, the sulphur of the sulphuret is driven off in vapour, and the antimony combining with the oxygen of the air is oxidized and converted into antimonious acid: the horn-shavings, which consist of

phosphate of lime with animal matter, lose the latter (scil. the animal matter) by the dissipating effects of the heat; so that what remains in the crucible is a mixture of oxide of antimony, or antimonious acid and phosphate of lime.

ARGENTI NITRAS.

Materials.—Silver,
Nitric acid,
Distilled water.

Products.—Nitrous acid gas, and nitrate of silver.

Process.—When the silver is dissolved in the nitric acid, a portion of this acid is decomposed into nitric oxide and oxygen, the latter, scil. the oxygen, unites with the silver to form an oxide of silver, whilst the former combines with some of the oxygen of the atmospheres and form, with it red nitrous acid vapours which escape. The nitric acid not decomposed unites with the new oxide of silver, forming with it nitrate of silver.

ARGENTI CYANIDUM.

Materials.—Nitrate of silver,
Dilute hydrocyanic acid,
Distilled water.

Products.—Nitric acid with water in solution, and cyanide of silver precipitated.

Process.—When the dissolved nitrate of silver and the hydrocyanic acid are mixed together, they are both decomposed, the hydrogen of the hydrocyanic acid combines with the oxygen of the oxide of silver, so as

to form water, whilst the cyanogen combines with the silver, forming a cyanide of silver which is precipitated—the water formed remains in solution with the nitric acid of the decomposed nitrate.

PREPARATUM EX ARSENICO.

LIQUOR POTASSIÆ ARSENITIS.

(*Solution of Arsenite of Potash.*)

Materials.—Arsenious acid,
Carbonate of potash,
Compound tincture of lavender,
Distilled water.

Product.—Arsenite of potash in solution.

Process.—During the boiling, owing to the greater affinity which the arsenious acid has for potash, the carbonic acid is expelled, and an arsenite of potash is formed.

BARII CHLORIDUM.

Materials.—Carbonate of barytes,
Hydrochloric acid,
Distilled water.

Products.—Water and chloride of barium.

Process.—When heat is applied, the carbonic acid of the carbonate of barytes is expelled; then the oxide of barium and hydrochloric acid mutually decompose each other, the hydrogen of the latter combines with the oxygen of the former, so as to form water, whilst the chlorine unites with the barium forming chloride of barium.

BISMUTHI TRISNITRAS.

Materials.—Bismuth,
Nitric acid,
Distilled water.

Products.—Trisnitrate of bismuth.

Process.—Here a part of the nitric acid is decomposed into nitric oxide gas and oxygen, the former escapes, and the latter, scil. the oxygen, unites with the bismuth, forming oxide of bismuth, which unites with the undecomposed nitric acid.

CALX.

Material.—Chalk.

Product.—Lime.

Process.—Chalk, which is carbonate of lime, being subjected to strong heat, gives off the carbonic acid, and lime remains.

CALCII CHLORIDUM.

Materials.—Chalk,
Hydrochloric acid,
Distilled water.

Products.—Water and chloride of calcium.

Process.—The carbonic acid of the carbonate of lime is driven off in the gaseous form; the hydrogen of the hydrochloric acid combines with the oxygen of the lime to form water; and the chlorine and calcium combining form chloride of calcium.

CALX CHLORINATA.

Materials.—Hydrate of lime,
Chlorine.

Product.—Chloride of lime.

Process.—The chlorine is obtained in this operation from hydrochloric acid added to binoxide of manganese—the changes which take place are: 2 equivs. of hydrochloric acid consist of 2 equivs. of hydrogen=2; and two equivs. of chlorine=72; 1 equiv. of binoxide of manganese consists of 2 equivs. of oxygen=16; and one equiv. of manganese=28; when these act on one another, the 2 equivs. of hydrogen combine with the 2 equivs. of oxygen, and form 2 equivs. of water, while one of the equivs. of chlorine unites with the one of manganese to form chloride of manganese, and the other equiv. of chlorine is evolved in the gaseous state, and is absorbed by the lime, thus yielding chloride of lime, or the *Calx Chlorinata.*

CUPRI AMMONIO-SULPHAS.

Materials.—Sulphate of copper,
Sesquicarbonate of ammonia.

Product.—Ammonio-sulphate of copper.

Process.—When the sulphate of copper and sesquicarbonate of ammonia are rubbed together, a portion of the carbonic acid of the latter is expelled with effervescence; there are formed a simple carbonate of copper and sulphate of ammonia, which with the

excess of the sequicarbonate of ammonia used, forms the cupri ammonio-sulphas.

PRÆPARATA E FERRO.

Ferri Sulphas.

Materials.—Iron filings,
Sulphuric acid,
Water.

Product.—Sulphate of iron.

Process.—When the iron is put into the sulphuric acid first diluted with water, a part of the water is decomposed by the action of the sulphuric acid and iron—the oxygen of it combines with the iron, and forms protoxide of iron, whilst its hydrogen escapes in the gaseous state; the protoxide of iron thus formed unites with the sulphuric acid, and forms sulphate of iron.

FERRI SESQUIOXIDUM.

Materials.—Sulphate of iron,
Carbonate of soda,
Boiling water.

Product.—In the first instance *sulphate of soda* in solution, and *carbonate of iron* precipitated, which latter, by washing and exposure to the air, is converted into a *sesquioxide of iron.*

Process.—When the solutions of sulphate of iron and carbonate of soda are mixed together, double decomposition ensues; the sulphuric acid of the sulphate of iron combines with the soda, forming sulphate of soda, which is held in solution, whilst the

carbonic acid of the carbonate of soda unites with the iron, forming carbonate of iron, which from its insolubility in water, is precipitated. By the process of washing, any adhering sulphate of soda is removed from the precipitated carbonate of iron, which also from exposure to the air, acquires oxygen, and loses carbonic acid, the result being a sesquioxide of iron.

TINCTURA FERRI SESQUICHLORIDI.

Materials.—Sesquioxide of iron,
Hydrochloric acid,
Rectified spirits.

Product.—Sesquichloride of iron dissolved in the spirit.

Process.—The sesquioxide of iron and hydrochloric acid mutually decompose each other; the hydrogen of the acid combines with the oxygen of the oxide to form water, whilst the chlorine combines with and dissolves the iron, forming sesquichloride of iron.

FERRI POTASSIO-TARTRAS.

Materials.—Sesquioxide of iron,
Hydrochloric acid,
Solution of potash,
Bitartrate of potash,
Solution of sesquicarbonate of ammonia,
Distilled water.

Products.—Tartrate of potash, and tartrate of the sesquioxide of iron.

Process.—When the sesquioxide of iron and the hydrochloric acid are added together, they are both decomposed, water and sesquichloride of iron being formed ; when to this is added the solution of potash, decomposition takes place, hydrated sesquioxide of iron is thrown down, and chloride of potassium remains in solution. This hydrated sesquioxide of iron being boiled in water with the bitartrate of potash, the excess of acid in the bitartrate combines with the oxide of iron, forming tartrate of iron ; so that the solution contains tartrate of potash and tartrate of the sesquioxide of iron—if not neutral to the litmus test, ammonia is to be added.

FERRI AMMONIO-CHLORIDUM.

Materials.—Sesquioxide of iron,
Hydrochloric acid,
Hydrochlorate of ammonia,
Distilled water.

Product.—Sesquichloride of iron mixed with hydrochlorate of ammonia.

Decomp.—The solution of sesquioxide of iron in hydrochloric acid yields sesquichloride of iron, which in the present process is mixed with hydrochlorate of ammonia, and evaporated to dryness.

FERRI IODIDUM.

Materials.—Iodine,
Iron filings,
Distilled water.

Product.—Proto-iodide of iron.

Process.—From the known readiness with which iodine combines with metals, we here obtain a solution of proto-iodide of iron—by evaporation an opaque crystalline mass of an iron grey colour is obtained.

HYDRARGYRI BICHLORIDUM.

Materials.—Mercury,
Sulphuric acid,
Chloride of sodium.

Products.—Bichloride of mercury,
Sulphate of soda.

Decompositions.—By boiling down the mercury with the sulphuric acid, a bipersulphate of mercury is formed, for the explanation of which part of the process see the next preparation, that of calomel. When this bipersulphate so formed is sublimed with the chloride of sodium, double decomposition takes place: 1 equivalent of the mercury combines with 2 equivalents of the chlorine and forms 1 equivalent of bichloride of mercury; 2 equivalents of the oxygen separated from the mercury combine with 2 equivalents of sodium and form 2 equivalents of soda, which unite with 2 equivalents of sulphuric acid and give rise to 2

equivalents of sulphate of soda. This remains in the lower part of the vessel.

HYDRARGYRI CHLORIDUM.

Materials.—Mercury,
Sulphuric acid,
Chloride of sodium.

Products.—Protochloride of mercury,
Sulphate of soda.

Decompositions.—In the first part of the process 1 equivalent of mercury decomposes 2 equivalents of dry sulphuric acid, and taking there from 2 equivalents of oxygen so as to form 1 equivalent of binoxide of mercury, disengages 2 equivalents of sulphurous acid. The binoxide of mercury thus formed combines with 2 equivalents of undecomposed sulphuric acid, forming 1 equivalent of bipersulphate of mercury. When 1 equivalent of this bipersulphate, 1 equivalent of metallic mercury, and 2 equivalents of chloride of sodium are triturated and intimately mixed, they re-act on each other, and the results are 2 equivalents of chloride of mercury, and 2 equivalents of sulphate of soda.

HYDRARGYRI AMMONIO-CHLORIDUM.

Materials.—Bichloride of mercury,
Distilled water,
Solution of ammonia.

Product.—Ammonio-chloride of mercury.

Process.—When ammonia is added to the dissolved bichloride of mercury, a portion of the water is decomposed, the hydrogen of which combines with a portion of the chlorine of the bichloride, forming hydrochloric acid, which combines with some of the ammonia and forms hydrochlorate of ammonia, which is poured off. The oxygen of the decomposed water unites with the mercury of the bichloride, forming a binoxide of that metal, which is precipitated with undecomposed bichloride of mercury and ammonia, constituting ammonio-chloride of mercury.

HYDRARGYRI OXYDUM.

Materials.—Chloride of mercury,
Lime water;

Products.—Chloride of calcium in solution—oxide of mercury precipitated.

Process.—When lime water and chloride of mercury are added together, they are both decomposed; the chlorine of the chloride combines with the calcium of the lime forming chloride of calcium, which is dissolved in the water and poured off, whilst the oxygen of the lime unites, with the mercury, forming oxide of mercury, which is thrown down.

HYDRARGYRI BINOXYDUM.

Materials.—Bichloride of mercury,
Solution of potash,
Distilled water.

Products.—Chloride of potassium dissolved, and binoxide of mercury precipitated.

Process.—When a solution of potash is added to the solution of bichloride of mercury, double decomposition takes place; the 2 equivalents of chlorine contained by the bichloride, seize on 2 equivalents of potassium of the potash, thereby forming chloride of potassium, whilst the 2 equivalents of oxygen separated from the potassium unite with the 1 equivalent of mercury, forming a binoxide of mercury which is precipitated.

HYDRARGYRI NITRICO-OXYDUM.

Materials.—Mercury,
Nitric acid,
Distilled water.

Product.—Binoxide of mercury.

Process.—In the first place on dissolving the mercury in the dilute nitric acid, part of the acid is decomposed into nitric oxide gas and oxygen, the former combines with the oxygen of the air, so as to form nitrous acid gas, whilst the latter combines with the mercury forming an oxide of mercury, with which the undecomposed nitric acid unites, so as to form a protonitrate of mercury. This is again decomposed when heated in an open vessel, the nitric acid is separated into nitric oxide gas, which combines with the oxygen of the air. The protoxide of mercury from which the decomposed nitric acid has been driven off, com-

bines with the oxygen of the decomposed nitric acid, thus forming a binoxide of mercury as in the preceding preparation.

HYDRARGYRI BICYANIDUM.

Materials.—Percyanide of iron,
Binoxide of mercury,
Distilled water.

Products.—Bicyanide of mercury (dissolved) and oxide of iron.

Process.—When the percyanide of iron and binoxide of mercury are boiled together, they re-act on each other; the cyanogen leaves the iron to unite with the mercury, forming bicyanide of mercury, which is dissolved, whilst the iron combines with the oxygen of the mercury, forming oxide of iron.

ANOTHER METHOD.

Materials.—Binoxide of mercury,
Hydrocyanic acid.

Products.—Water and bicyanide of mercury.

Process.—Here two equivalents of the acid decompose one of the oxide, the hydrogen of the former unites with the oxygen of the latter to form water, whilst the cyanogen (2 equivs.) combine with the mercury (1 equiv.) forming bicyanide of mercury.

HYDRARGYRI IODIDUM ET BINIODIDUM.

Materials.—Mercury,
Iodine,
Alcohol.

Result.—Iodide or biniodide of mercury.

In this preparation the mercury and iodine combine: this combination is facilitated by the iodine being dissolved in the alcohol.

HYDRARGYRI BISULPHURETUM.

Materials.—Mercury,
Sulphur.

Result.—Bisulphuret of mercury.

In this process the combination of the mercury and sulphur is effected by means of the heat employed. The process of sublimation expels the excess of the sulphur, and the red or bisulphuret of mercury is formed.

HYDRARGYRI BISULPHURETUM CUM SULPHURE.

Materials.—Mercury,
Sulphur.

Result.—Bisulphuret of mercury with sulphur.

In this process, a portion of the sulphur combines chemically with the mercury, so as to form a bisulphuret. This is mechanically mixed with the remainder of the sulphur.

MAGNESIA.

Material.—Carbonate of magnesia.

Result.—Magnesia.

Process.—By heat the carbonic acid is driven off, and pure magnesia remains.

MAGNESIÆ CARBONAS.

Materials.—Sulphate of magnesia,
Carbonate of soda,
Distilled water.

Products.—Sulphate of soda,
Carbonate of magnesia.

Process.—Double decomposition takes place here; the carbonic acid of the carbonate of soda combines with the magnesia of the sulphate, carbonate of magnesia, which being insoluble in water, is precipitated: sulphate of soda is also formed and remains in solution.

PLUMBI ACETAS.

Materials.—Oxide of lead,
Acetic acid,
Distilled water.

Product.—Acetate of lead.

Process.—Here the acetic acid combines with the oxide of lead to form an acetate of lead.

PLUMBI CHLORIDUM.

Materials.—Acetate of lead,
Chloride of sodium,
Boiling water.

Products.—Acetate of soda, and chloride of lead.

Process.—Here double decomposition occurs; the oxygen of the lead passes to the sodium and forms

soda which combines with the acetic acid, forming a soluble acetate of soda, whilst the chlorine of the chloride of sodium combines with the lead, forming chloride of lead, which is precipitated.

PLUMBI IODIDUM.

Materials.—Acetate of lead,
Iodide of potassium,
Distilled water.

Products.—Acetate of potash, and iodide of lead.

Process.—A case of double decomposition: the oxygen of the lead is transferred to the potassium, forming potash, which uniting with the acetic acid of the acetate of lead, forms a soluble acetate of potash, the iodine set free from the iodide of potassium unites with the lead, forming iodide of lead, which is precipitated.

PLUMBI OXYDUM HYDRATUM.

(*Hydrated Oxide of Lead.*)

Materials.—Solution of diacetate of lead,
Distilled water,
Solution of potash.

Products.—Acetate of potash, and hydrated oxide of lead.

Process.—Here the acetic acid of the diacetate combines with the potash, forming acetate of potash; the oxide of lead is precipitated, combining with water.

POTASSÆ CARBONAS.

Materials.—Impure carbonate of potash,
Distilled water.

Result.—Carbonate of potash.

Process.—The earthy impurities with which the impure carbonate of potash is mixed are removed by solution in water.

POTASSÆ BICARBONAS.

Materials.—Carbonate of potash,
Carbonic acid.

Product.—Bicarbonate of potash.

Proeess.—The carbonic acid is obtained by decomposing chalk (carbonate of lime) by pouring sulphuric acid on it. The carbonic acid thus evolved in the gaseous form is passed into the solution of carbonate of potash, and thus there is formed a bicarbonate of potash, the sulphate of lime remaining in the vessel containing the chalk in which the sulphuric aoid had been poured.

LIQUOR POTASSÆ.

Materials.—Carbonate of potash,
Lime,
Boiling water.

Products.—Solution of potash, and carbonate of lime.

Process.—The affinity between the carbonic acid and the lime being greater than between the acid

and potash, the carbonate of potash is decomposed, carbonate of lime is precipitated, whilst the potash remains in solution.

POTASSÆ ACETAS.

Materials.—Carbonate of potash,
Acetic acid,
Distilled water.

Product.—Acetate of potash. Carbonic acid is expelled.

Process.—From the greater affinity subsisting between potash and acetic acid than between potash and carbonic acid, the latter acid is expelled from the carbonate, and an acetate of potash is formed.

POTASSÆ SULPHAS.

Material.—Bisulphate of potash.

Product.—Sulphate of potash.

Process.—The salt which remained after the distillation of nitric acid, we have already seen, consists of bisulphate of potash and water; by the process here employed the excess of acid is expelled by heat, and a simple sulphate remains.

POTASSÆ BISULPHAS.

Materials.—Salt remaining after the distillation of nitric acid,
Sulphuric acid,
Boiling water.

Product.—Bisulphate of potash.

Process.—In consequence of the liability of a solution of bisulphate of potash to part with a portion of its excess of acid, and thereby yield a simple sulphate and sesquisulphate of potash, sulphuric acid is here directed to be employed to insure the formation of a bisulphate.

POTASSÆ TARTRAS.

Materials.—Bitartrate of potash,
Carbonate of potash.

Result.—Tartrate of potash.

Process.—The excess of tartaric acid in the bitartrate expels the carbonic acid of the carbonate of potash, and combines with the potash, thus forming a neutral tartrate of potash.

POTASSII BROMIDUM.

Materials.—Bromine,
Carbonate of potash,
Iron filings,
Distilled water.

Products.—Carbonate of iron (precipitated), and bromide of potassium (in solution.)

Process.—In the first part of this process there is directly formed a bromide of iron; when to the solution of this a solution of carbonate of potash is added, mutual decomposition takes place; the oxygen of the potash goes to the iron, forming oxide of iron, with which the carbonic acid of the carbonate of potash

combines, forming carbonate of iron; this is precipitated; whilst the bromine unites with the potassium of the decomposed potash, forming bromide of potassium.

POTASSII IODIDUM.

Materials.—Iodine,
Carbonate of potash,
Iron filings,
Distilled water.

Products.—Carbonate of iron (precipitated),
Iodide of potassium.

Process.—Similar to the preceding. First an iodide of iron is formed, which is decomposed by the carbonate of potash—the oxygen of the potash passes to the iron, forming oxide of iron, with which the carbonic acid unites, forming carbonate of iron (precipitated); the iodine of the decomposed iodide of iron unites with the potassium, forming iodide of potassium; which is allowed to crystallize.

POTASSII SULPHURETUM.

Materials.—Sulphur,
Carbonate of potash.

Product.—Sulphuret of potassium, with some sulphate of potash.

Process.—In the first part of the process, the carbonic acid is expelled, and the greater part of the potash is decomposed; its oxygen combining with sulphur so as to form sulphuric acid, which unites

with the undecomposed potash, forming a sulphate of potash. A sulphuret of potassium is also formed by the combination of the potassium of the decomposed potash with sulphur; so that the result of the process is a compound of sulphuret of potassium and sulphate of potash.

PRÆPARATA E SODIO.

SODÆ CARBONAS.

Materials.—Impure carbonate of soda,
Distilled water.

Result.—Pure carbonate of soda.

The impurities which exist in the common soda are here removed by solution, filtration, evaporation and crystallization.

SODÆ CARBONAS EXSICCATA.

By the application of heat the greater part of the water of the crystallized carbonate of soda is expelled; the entire of it is removed by heating to redness.

SODÆ SESQUICARBONAS.

Here the carbonate of soda is made to combine with another portion of carbonic acid, and so a sesquicarbonate is formed.

SODÆ SULPHAS.

Here the excess of sulphuric acid, which remains after the decomposition of the chloride of sodium, is saturated by the soda of the carbonate of soda.

SODÆ POTASSIO-TARTRAS.

Materials.—Bitartrate of potash,
Carbonate of soda.

Product.—Potassio-tartrate of soda.

Process.—The excess of tartaric acid in the bitartrate of potash is saturated by the soda, the carbonic acid of the corbonate of soda being expelled by heat.

LIQUOR SODÆ CHLORINATÆ.

(*Solution of Chlorinated Soda.*)

Materials.—Carbonate of soda,
Distilled water,
Chloride of sodium,
Binoxide of manganese,
Sulphuric acid.

Product.—A compound of chlorine, and carbonate of soda.

Process.—When the sulphuric acid acts on the mixture of the chloride of sodium and binoxide of manganese, 1 equivalent of oxygen passes from the binoxide to the sodium, and forms soda, 1 equivalent of the bonoxide of manganese is thus reduced to a protoxide; 2 equivalents of sulphuric acid then combine with this protoxide and with the soda, thus forming a sulphate of manganese and sulphate of soda; the 1 equivalent of chlorine is given off from the chloride of sodium, passed through water for the

purpose of freeing it from any hydrochloric acid which might arise, and then passed into the solution of carbonate of soda.

ZINCI SULPHAS.

Materials.—Zinc,
Diluted sulphuric acid.

Product.—Sulphate of zinc.

Process.—Water is decomposed, its hydrogen escapes in the form of gas, whilst its oxygen combines with the zinc to form oxide of zinc; this is dissolved by the acid, and sulphate of zinc is the result.

ZINCI OXYDUM.

Materials.—Sulphate of zinc,
Sesquicarbonate of ammonia,
Distilled water.

Product.—Oxide of zinc.

Process.—Double decomposition occurs here: the sulphuric acid of the sulphate of zinc combines with the ammonia, forming sulphate of ammonia, which is dissolved; whilst some of the carbonic acid of the sesquicarbonate escapes, the greater portion of it combines with the oxide of zinc, forming carbonate of zinc, which is precipitated; this is ignited, and thereby its carbonic acid is drawn off, and an oxide of zinc remains.

TOXICOLOGY.

GENERAL SYMPTOMS OF POISONING.

When a person in perfect health is suddenly attacked after having taken some food, or drink, with violent pain, cramp in the stomach, nausea, vomiting, convulsive actions, and a sense of suffocation, or when, under the same circumstances, he is seized with vertigo, delirium, or unusual drowsiness, there is every reason to suspect that he has taken poison.

Poisoning may be distinguished from a sudden fit of apoplexy, by the stomach and throat not being affected in the latter.

DIVISION OF POISONS.

Christison's division has been here adopted, viz., into Irritants, Narcotics, and Narcotico-acrids.

SYMPTOMS CAUSED BY IRRITANT POISONS.

They are those of violent irritation or inflammation of the alimentary canal. When the irritant is also corrosive, the mouth is affected, pricking or burning of the tongue, redness, swelling, and ulcera-

tion of the tongue and palate and lining membrane of the cheeks. The throat and gullet are affected with burning pain, sometimes with constriction, difficulty of swallowing, and redness.

The stomach most constantly suffers ; there is acute, burning pain of that viscus ; sickness and vomiting ; abdominal tension, and swelling. The matter vomited consists first of the natural contents of the stomach ; then of tough mucus, often streaked with blood and mingled with bile. Those irritants which are corrosive, affect the stomach instantly, as also when the irritant is very soluble ; but the insoluble irritants do not act sometimes for half an hour or even a whole hour. The intestines are generally affected with burning pain over the entire abdomen—this pain is sometimes pricking or tearing, and frequently of a twisting or intermitting kind, like that of colic. There is generally purging, rarely constipation, frequently tenesmus—pulse quick and feeble—great prostration, and cold and clammy moisture of the skin.

TOXICOLOGICAL TABLES:

EXHIBITING THE SYMPTOMS OF POISONING, THE ANTIDOTES FOR EACH POISON, AND THE TESTS PROPER FOR THEIR DETECTION.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
ACIDS (mineral) ——Sulphuric ——Nitric ——Hydrochloric	A sense of burning in the mouth and throat—acrid eructations—excruciating pain in the stomach—lips shrivelled, presenting a whitish, yellowish or brownish appearance—the same appearance may be observed on the tongue and inside of the mouth—matter vomited brown or black—hiccup—costiveness or bloody stools—tenderness of abdomen—dysuria—laborious breathing—pulse weak—extremities cold and clammy.	The copious and immediate use of mixtures of *chalk* or *magnesia* with milk, or solution of *soap* in water.	*A. Sulphuric*—*Nitrate of Baryta* in solution gives with it a white precipitate insoluble in nitric acid—this is sulphate of Baryta. *A. Nitric*—best recognised by its effect in destroying the colour of *sulphate of indigo*, when heated with it in a tube. *A. Hydrochloric*—detected by the addition of *nitrate of silver*, which throws down insoluble muriate of silver.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
ACID.—Oxalic	Tongue and gums red and inflamed. Burning pains in mouth, throat and stomach—cold clammy sweats—sometimes a vomiting of dark, bloody matter, and sometimes violent purging. Pulse becomes faint and fluttering, and heart becomes paralysed—torpidity—great sinking—and exhaustion.	Instant evacuation of the stomach, and the exhibition of *chalk* mixtures.	1st. *Hydrochlorate of Lime* gives a white precipitate (oxalate of lime) dissolved on the addition of a drop or two of nitric acid, and not dissolved on the addition of a little hydrochloric acid. 2nd. *Sulphate of copper* gives a *faint blueish* or *greenish white* (oxalate of copper) precipitate not dissolved on the addition of a few drops of hydrochloric acid. 3rd. *Nitrate of Silver* gives a dense, white precipitate, which collected, dried and heated, becomes brown on the edge, then fulminates faintly and is dispersed.
ALKALIES *Potass, Soda and their Carbonates*	Acrid, burning and urinous taste in the mouth—deglutition difficult and painful—lining membrane of mouth destroyed	1. Vinegar or lemon-juice. 2. Fixed oil, as almond oil, or olive oil, which	*Potass* (caustic)—soapy feel—very deliquescent and very soluble, the solution having a strong alkaline reaction.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
	—violent vomiting, often bloody—acute pain in stomach and tenderness of abdomen—cold sweats—hiccup—tremors and twitches of the extremities—soon after, violent colic pains with bloody stools.	converts the alkali into a soap.	*Carbonate* gives out carbonic acid gas on adding a stronger acid—its solution precipitates *yellow* with the *chloride of platinum*. *Soda*, carbonate of, *easily crystallized*—not so carbonate of potass. The salts of soda unaffected by chloride of platinum—*acetate of soda* permanent in the air—acetate of potass deliquescent.
Nitrate of Potass	Acute, stinging pains in the stomach and over the body, followed by chilliness—sometimes symptoms of the most violent cholera—vomiting and purging of bloody matters. Convulsions and twisting of mouth—failing of the pulse at the wrist and a tendency to faint a little before death.	Stomach-pump—an emetic of sulphate of copper—copious draughts of warm water or some bland fluid to promote vomiting.	Enlivens the combustion of burning fuel—yields nitrous fumes, when heated with strong sulphuric acid—its solution is precipitated yellow by chloride of platinum.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
AMMONIA and its SALTS	Symptoms closely resemble those produced by the fixed alkalies, potass and soda, with the addition of a pungent, suffocating sensation from the ammoniacal vapour—severe bronchitis is occasioned by the excessive use of ammonia as a stimulant to the nostrils.	*Vinegar* should be instantly administered, or for want of it, *lemon-juice*, or some vegetable acid—when an excessive quantity of the vapour is inhaled, the vapour of heated vinegar should be inhaled.	Its pungent odour will distinguish ammonia from other fluids—*Carbonate of ammonia* is precipitated by the salts of lime, which distinguishes it from the pure liquid ammonia. *Muriate of Ammonia* is known by the effect of caustic potass and nitrate of silver, the former disengaging an ammoniacal odour, and the latter causing in a solution of the salt a white precipitate, chloride of silver.
SULPHURET of POTASS	Burning pain and a feeling of constriction in throat and stomach—vomiting, at first sulphureous, then bloody, has been observed, as also convulsions; the air of the chamber being tainted with the odour of sulphuretted hydrogen—death, preceded by extreme faintness, has occurred in about 15 minutes.	Chloride of soda or lime.	Greyish, greenish, or yellowish colour when solid—the odour of sulphuretted hydrogen evolved from it by the mineral acids.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
ARSENIC and its Combinations	Nausea—vomiting—great heat and pain in the stomach—purging—intense thirst—severe spasms in limbs and body—great prostration of strength—pallor of the face—feeble pulse; sometimes convulsions precede death.	Stomach-pump — vomiting should be excited by tickling the throat with a feather, and also by filling the stomach with warm or cold milk, sugared water, linseed tea. The antidote now most valued is the recently prepared *hydrated peroxide of iron* promptly administered in large doses—*lime-water* may also be tried.	1st. *In the solid form*, it (white arsenic) should be reduced to the metallic state by introducing it, with charcoal powder, into a small tube and applying gradually the heat of a spirit lamp: this will yield a blackish, shining, metallic crust, the interior of which is crystalline—a portion of this, exposed to heat, gives out the alliaceous odour. When the white oxide exists in solution in the contents of the stomach, the liquid must be first clarified, and the following tests may be applied:—1st. A stream of *sulphuretted hydrogen* throws down a *lively yellow precipitate*. 2nd. The *Ammoniaco-nitrate of silver* gives a *yellow precipitate* which soon fades to a *brown*. 3rd. *Ammoniaco-sulphate of*

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
			copper gives a green precipitate. Any of these precipitates heated with black or soda flux in a glass tube will afford the metallic crust.
MERCURY.— The mercurial which occurs most frequently as a poison is *Corrosive Sublimate*	Styptic taste—then a burning in the throat—violent vomiting—great distress in stomach and bowels—violent colic—severe purging—blood vomited or passed by stool—eyes sparkling—the powers of life soon sink—voice is lost—cold clammy sweats over the surface—the perceptions of external objects is lost and convulsions close the scene. When either a smaller dose of the sublimate, or a milder mercurial has been swallowed, after dysenteric symptoms ptyalism supervenes—the fauces may become ulcerated	Whites of eggs, milk, gluten of wheat should be administered as soon as possible. The secondary symptoms should be treated by antiphlogistic remedies.	Corrosive sublimate when held in solution is readily detected by letting fall a drop of the solution on the surface of polished gold, and then bringing a bit of iron in contact with both—a galvanic circle is thus formed, the acid will be transferred to the iron, whilst the mercury in the metallic state will be deposited on the gold. When there is much corrosive sublimate present, we may try it—1st. by *lime-water* which throws it down of a *deep yellow*. 2nd. by *alkalies* which form with it an *orange precipitate*. 3rd. by

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
	and gangrene ensue, and so carry off the patient—should the person survive he may suffer from mercurial palsy.		*protomuriate of tin*, which gives a *slate grey powder*, and 4th. by *hydriodate of potass*, which forms a bright scarlet precipitate.
COPPER as in the form of *Verdigris* or diacetate—*Blue vitriol* or Sulphate of Copper.	These resemble those caused by arsenic and corrosive sublimate—there is a peculiar coppery taste in the mouth also—coppery eructations—jaundice—in fatal cases, convulsions and insensibility precede death.	The *whites of eggs*. Iron filings have also been found useful.	1st. *Ammonia* gives to a solution of copper a *blue colour*—2nd. *Sulphuretted hydrogen* a *brown precipitate*—3rd. *Ferro-cyanate of potass* yields a fine *hair-brown precipitate*—4th. a plate of *polished iron* held in a solution of sulphate of copper soon becomes covered with a *red powdery crust*.
ANTIMONY.—Tartar Emetic	Copious vomitings—burning pain in the pit of the stomach, followed by purging and colic pains—a sense of tightness in the throat—difficulty of swallowing—violent cramps.	If vomiting has not occurred, it should be encouraged by the patient taking large draughts of warm water, *decoction of bark* or *of nut-*	1st. *Sulphuretted hydrogen* throws down a *rich orange-red precipitate*—2nd. *Caustic potass* — 3rd. lime-water — 4th. *Subcarbonate of potass* throws down a *white precipi-*

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
		galls—when the vomiting has continued long enough, opium will be found useful.	*tate*—5th. Infusion of gall-nuts a *dirty white* precipitate.
TIN.—1. The *Bi-chloride*, called Butter of Tin—and 2. the *Oxide* or worm powder.	Colic—severe purging—in fatal cases somnolency and catalepsy has been produced.	Milk—decoction of nut-galls — bicarbonate of soda.	The bichloride of tin affords a rich purple precipitate with deutomuriate of gold—and when strong, it coagulates milk completely.
SILVER.— Nitrate of.	This acts as a local irritant and corrosive.	Common salt in solution	Alkaline and earthy muriates.
ZINC—Sulphate of.	Metallic taste in the mouth—sense of strangling—tightness in the throat, copious vomiting, and purging—pains at epigastrum and over the entire abdomen—dyspnœa — pallor of the face.	Milk--bicarbonate of soda in solution.	*Sulphuretted hydrogen* throws down a *white precipitate*.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
LEAD.--Litharge--Red lead--White lead—Sugar of lead—(acetate.)	The symptoms are either those of simple irritation, or more commonly those of inflammation combined with the peculiar spasmodic colic of lead, sometimes followed by convulsions, coma or local palsy.	If there is no vomiting use the *stomach-pump*, or give an *emetic* of sulphate of zinc —*Epsom salts* or *Glauber's salts*.	1st. *Sulphuretted hydrogen* gives a *black* precipitate—2nd. *Chromate of potass* gives a *fine gamboge yellow* precipitate—3rd. Hydriodate of potass the same—4th. a piece of zinc held in the solution causes the lead to be deposited in the form of a crystalline arborescence.
BARYTA.	The symptoms are those of irritant poisons generally—the senses become blunted, respiration feeble, and convulsions close the scene.	Sulphates of soda or magnesia.	Sulphuric acid or sulphates—the hydrochlorate of baryta is to be distinguished from the hydrochlorate of strontia by the insolubility of the former in alcohol.
VEGETABLE ACRIDS Euphorbia, or Spurge — Ricinus, or Castor oil-tree —Jatropha, or Cassada	The symptoms are those indicative of inflammation of the mucous membrane of the stomach and intestines. If the dose be considerable, *vomiting* in general—*diarrhœa*	The poison should be removed by the *stomach-pump*, or by an *emetic* of sulphate of zinc—vomiting should be encouraged by copious	

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
plant — Elaterium, or Spurting Cucumber —Colocynth, or Bitter Apple—Bryony, or Wild Cucumber—Ranunculus, or Butter Cup—Anemone — Stavesacre—Celandine —Marsh Marygold — Mezereon — Savine—Spurge-laurel — Jalap — Daffodil —Manchineel.	—*twisting pain of the belly*, with *tension*, *fullness*, and *tenderness*—fragments of the plant in the stools—*great debility*—occasionally *giddiness* and *delirium*—the pulse quick and throbbing—*breathing oppressed*—*tottering gait*, resembling that caused by intoxication—sometimes *convulsions*.	draughts of warm water, sugared water, or some bland fluid. In case of stupor, very strong coffee both by mouth, and in the form of enema—three or four grains of camphor in the yolk of egg. The convulsions should be met by laudanum—and the inflammation by the usual antiphlogistic means.	
CANTHARIDES.	A sense of *burning in the throat*, causing *difficult deglutition* and an *aversion to liquids*—*irritation* along the gullet and in the stomach—sometimes *bloody vomiting*—violent pain	Emetics--vomiting should be encouraged by copious draughts of warm water—oleaginous and demulcent injections into the bladder relieve	

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
	in the lower belly—priapism—distressing strangury with suppression of urine and discharge of blood from the urethra—occasionally severe headache, delirium and convulsions.	the strangury—warm bath—leeches and blood-letting.	
NARCOTIC POISONS.—Opium—Henbane—Lettuce-Opium--Solanum--Hydrocyanic Acid.	The general symptoms are giddiness, headache, obscurity or deprivation of sight—stupor, or perfect insensibility--palsy of the voluntary muscles—convulsions—coma.		

DIAGNOSIS OF APOPLEXY AND NARCOTIC POISONING.—1st. Apoplexy is generally preceded by certain warning, as giddiness, headache, ringing in the ears, &c. 2nd. Apoplexy generally attacks old persons and persons who are fat. 3rd. The symptoms of narcotic poisons are gradual, those of apoplexy generally begin abruptly. 4th. In the apoplectic stupor the patient cannot be aroused to consciousness; whilst in narcotism the patient may be aroused from the deepest lethargy by shaking, by injecting water into his ear, or by speaking to him in a loud voice.

OPIUM.	Giddiness, stupor not preceded by any stimulus—insensibility to external impressions—breathing slow—eyes closed	Remove the poison by stomach-pump, or by an emetic of sulphate of zinc—cold water	

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
	—pupils generally contracted —soon the features become ghastly—pulse feeble and imperceptible—the inclination to sleep at first slight, becomes irresistible—there is sometimes delirium—muscles become relaxed, and death soon follows. In cases of recovery the sopor is succeeded by a long sleep followed by nausea, vomiting and giddiness.	dashed on the face may assist the action of the emetic, where the stomach is torpid--in such cases also 1 gr. of tart. emetic may be injected into a vein. The patient should be perseveringly aroused by having him dragged between two men, and by repeatedly dashing cold water over his head—internal stimulants, as ammonia, camphor, etc., the injection of water into the ears will serve to arouse the patient—after the entire removal of the poison, *Venæsection — Artificial respiration—Decoction of galls—vegetable acids—Infus. of*	

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
		coffee, not till the poison is wholly removed.	
HYOSCYAMUS or HENBANE.	Giddiness—loss of speech—dilatation of the pupil—coma—violent delirium.	The same as for opium.	
HYDROCYANIC ACID.	In small doses nausea, salivation, pain of head—hurried pulse. In fatal doses, when very large, death is almost instantaneous—when not so large, convulsions precede death.	Ammonia--chlorine—and other diffusible stimulants. The inhalation of *ammoniacal* water. The inspiring water impregnated with *chlorine*. Cold affusion.	The *peculiar odour*. *Sulphate of copper* forms with this acid, when rendered alkaline with a little potass, a greenish precipitate, which becomes white on the addition of a little hydrochloric acid. *Salts of the protoxide of iron* yields a greyish green precipitate, which becomes Prussian blue on adding some sulphuric acid—*Nitrate of silver* gives a white precipitate insoluble in nitric acid at ordinary temperatures.

The Class of NARCOTIC-ACRID Poisons includes those which possess a double action, the one local and irritating, the other consisting of an impression on the nervous system, which impression is sometimes indicated by narcotic, and at other times by violent tetanic symptoms. It is in general by their action on the nervous system they prove fatal. The organs on which they act remotely are the brain, spinal cord and sometimes the heart.

NAME.	SYMPTOMS.	ANTIDOTES.	TESTS.
Nux Vomica — Upas Antiar— Cocculus Indicus — Woorara — Strychnia, &c., &c.	These act on spinal cord, causing convulsive stiffness, spasm of the thoracic muscles of respiration, and, according to some, of the diaphragm—should the patient not die suddenly in a fit of spasm, he may either recover, or expire in a little time apparently from exhaustion, or be attacked with inflammation of the stomach and intestines.	The poison should be expelled from the stomach by the ***stomach-pump***, or by a ***brisk emetic***—***Iodine***—chlorine.	
Atropa Belladonna — Hemlock — Tobacco--Thorn-Apple — Fox-Glove — Rue — Darnel — Ergot of Rye, &c., &c.	Great agitation — convulsive movements of the face and limbs—delirium of a more or less pleasing kind—obstinate vomiting and purging—abdominal pains—intoxication—great depression—sinking of the pulse and death.	A brisk emetic, and an active saline purgative. If there be much stupor, venæsection—inflammatory symptoms to be met by leeches to the abdomen, with fomentations and the use of bland liquids.	



